

REMARKS

Claims 22-46 are pending in the application. Claims 1-21 were previously canceled.

Independent Claims 22, 26, 29, 34, 35, 36, 40 and 44 are amended to recite "at least four moles of organoboron compound per mole of the organic dye", based on support, for example, at page 20, lines 5-26 and at page 119, where Examples 1 and 8 in Table 1 disclose molar ratios of organoboron compound to organic dye as 4:1. No new matter is added.

Entry of the amendment along with reconsideration and review on the merits are respectfully requested.

Claim Rejection - 35 U.S.C. § 103

Claims 22-46 rejected under 35 U.S.C. §103(a) as assertedly being unpatentable over CUNNINGHAM et al '794 in view of GOTTSCHALK et al '942.

The Examiner cites CUNNINGHAM et al as disclosing photopolymerizable compositions comprising a quinolinium dye compound, and a borate compound suitable as photoinitiators for the polymerizable composition, where the quinolinium dye as disclosed in CUNNINGHAM et al assertedly meets the claimed ingredient (c) for the organoboron compound. The Examiner asserts that CUNNINGHAM et al discloses the ratio of the borate compound to an organic dye is "at least one mole per mole of dye" as recited in Claim 22 (citing Example 35 as disclosing a weight of 0.4% of the borate compound and a weight of 0.3% for the dye).

AMENDMENT UNDER 37 C.F.R. § 1.116

U.S. Application No. 09/894,827

Q64663

The Examiner recognizes that CUNNINGHAM et al fails to explicitly disclose an image recording material using their disclosed photopolymerizable composition in an example and lacks the use of ingredient [D] such as a cyanine dye as a co-initiators in the examples.

The Examiner cites GOTTSCHALK et al '942 as disclosing a photohardenable composition suitable for use in photosensitive materials, which form color images. These materials use three sets of microcapsules containing cyan-forming capsules, magenta-forming capsules and yellow-forming capsules, where at least one of the aforementioned capsules further contains a photohardenable composition including a dye-borate complex and a free radical addition polymerizable compound.

Applicants respond as follows.

The combination of CUNNINGHAM with GOTTSCHALK fails to render obvious the present invention. As previously noted, Applicants amend independent Claims 22, 26, 29, 34, 35, 36, 40 and 44 to recite "at least four moles of organoboron compound per mole of the organic dye".

The present invention is characterized by radical decolorization of the initiator dye after exposure polymerization. The independent claims describe that at least one kind of an organoboron compound by general formula (I) be in a proportion of at least four moles per mole of organic dye. The ratio between the organic dye and the organoboron compound is very important from the standpoint of obtaining high sensitivity and sufficient decolorization by the irradiation of light in the fixing step. Applicants submit that if the amount of the organoboron compound to be added is less than four moles per mole of the organic dye, sufficient

AMENDMENT UNDER 37 C.F.R. § 1.116

U.S. Application No. 09/894,827

Q64663

polymerization reactivity and decolorization cannot be obtained (Specification on page 20, lines 5-26). Thus, in the present invention, improvements in several properties such as sensitivity, storability, and photo-fixability, and decolorization of organic dyes can be obtained by use of the organoboron compound in an amount of at least four moles per mole of the organic dye.

Applicants kindly point the Examiner to Experimental data listed in Table 1 in the specification on page 119. In particular, the present invention improves sensitivity and decolorization of organic dyes (a lower mJ/cm^2 number indicates higher sensitivity; a lower D_{\min} number indicates better decolorization).

In contrast, CUNNINGHAM makes no mention of the criticality of any particular molar ratio. Furthermore, the Examples in CUNNINGHAM do not satisfy the presently claimed molar ratio range. In fact, the highest molar ratios of the examples in CUNNINGHAM is 2.35. Finally, CUNNINGHAM does not realize the importance and benefits of the presently claimed molar ratio range to improve sensitivity and decolorization of organic dyes. Applicants submit that GOTTSCHALK fails to make up for CUNNINGHAM'S deficiencies so that the combination of these two references would still not render obvious the present invention.

The dependent claims are patentable for at least the same reasons given above for the patentability of the independent claims.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the obviousness rejection.

AMENDMENT UNDER 37 C.F.R. § 1.116

U.S. Application No. 09/894,827

Q64663

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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23373
CUSTOMER NUMBER

Date: January 21, 2005